

IN THE CLAIMS

Please amend the claims as indicated below.

1. (Previously presented) A method for recovering an image defined as a function of image coordinates of an image space from compressed data that is a function of transform coordinates in a transform space comprising:

- a) transforming said compressed data using at least one partial transform that transforms at least one but not all of the transform coordinates into a corresponding image coordinate to generate a set of intermediate coefficients which are functions of at least one coordinate from the image space and at least one coordinate from the transform space in a space intermediate between said transform space and said image space said intermediate space being defined by at least one coordinate from the image space and at least one coordinate from the transform space;
- b) adjusting the value of at least one intermediate coefficient and using said adjusted value to generate a set of adjusted intermediate coefficients; and
- c) recovering said image by transforming said set of adjusted intermediate coefficients to said image space with at least one additional partial transform.

2. (Original) A method according to claim 1 wherein adjusting the value of at least one partial coefficient comprises:

- a) determining an adjustment range;
- b) determining a value in said adjustment range; and
- c) setting the value of said intermediate coefficient equal to said determined value.

3. (Original) A method according to claim 2 wherein said compressed data comprises information for determining a set of quantized values and a quantizer for each quantized value as functions of coordinates of said transform space, and wherein transforming said data comprises determining a first set of coefficients in said transform space using said quantizers

and said quantized values and transforming said first set of coefficients with said at least one partial transform.

4. (Original) A method according to claim 3 wherein determining said first set of coefficients comprises determining the product of each quantized value with its quantizer and determining said first set of coefficients as a set comprising all said products.

5. (Original) A method according to claim 3 wherein determining said first set of coefficients comprises determining the product of each quantized value with its quantizer, adjusting the value of at least one of said products and determining said first set of coefficients as a set comprising all said products.

6. (Previously presented) A method according to claim 3 wherein determining an adjustment range comprises determining at least one adjustment limit and determining said adjustment range responsive to said adjustment limit.

7. (Original) A method according to claim 6 wherein determining at least one adjustment limit comprises transforming said set of quantizers with said at least one transform to generate a set of transformed quantizers in said intermediate space and determining an adjustment limit for at least one intermediate coefficient responsive to at least one transformed quantizer of said set of transformed quantizers.

8. (Original) A method according to claim 7 comprising adjusting the value of at least one quantizer responsive to values of said first coefficients prior to transforming said set of quantizers.

9. (Original) A method according to claim 8 wherein adjusting the value of at least one quantizer comprises determining whether all of said first set of coefficients are zero for a value of a single coordinate of said transform space greater than a certain value and constant

values for all other transform space coordinates and if so, setting the values of the quantizers corresponding to said zero coefficients equal to a same value.

10. (Original) A method according to claim 9 wherein said same value is equal to the maximum of said coefficients for all values of said single coordinate and said constant values for all other coordinates.

11. (Previously presented) A method according to claim 7 wherein said at least one adjustment limit for said at least one intermediate coefficient is determined responsive to the transformed quantizer having the same coordinates in the intermediate space as the at least one intermediate coefficient.

12. (Original) A method according to claim 11 wherein said adjustment limit is equal to said corresponding transformed quantizer multiplied by a fraction less than one.

13. (Original) A method according to claim 12 wherein said fraction is equal to 0.5.

14. (Original) A method according to claim 6 wherein determining at least one adjustment limit comprises determining an adjustment limit for at least one intermediate coefficient responsive to the value of at least one of said intermediate coefficients.

15. (Original) A method according to claim 14 wherein determining said at least one adjustment limit comprises determining the difference between a maximum and minimum intermediate coefficient in a plurality of intermediate coefficients in said set of intermediate coefficients and determining said adjustment limit responsive to said difference.

16. (Original) A method according to claim 15 wherein said plurality of intermediate coefficients comprises intermediate coefficients in a neighborhood of said at least one intermediate coefficient.

17. (Original) A method according to claim 15 wherein all but one of the coordinates of any two of the plurality of intermediate coefficients are the same and wherein the plurality of intermediate coefficients includes the at least one intermediate coefficient.

18. (Previously presented) A method according to claim 15 wherein said adjustment limit is equal to said difference multiplied by a fraction less than one.

19. (Original) A method according to claim 16 wherein said fraction is equal to 0.5.

20. (Previously presented) A method according to claim 3 comprising testing said set of adjusted intermediate coefficients for consistency with said first set of coefficients in said transform space.

21. (Original) A method according to claim 20 wherein testing said set of adjusted intermediate coefficients comprises transforming said set of adjusted intermediate coefficients into a second set of coefficients in said transform space and comparing coefficients of said first set with coefficients of said second set to determine if said set of adjusted coefficients is consistent with said first set of coefficients.

22. (Original) A method according to claim 21 wherein comparing coefficients comprises determining how close the value of at least one coefficient of said first set is to the value of at least one coefficient of said second set.

23. (Original) A method according to claim 22 wherein determining how close the value of at least one coefficient of said first set is to the value of at least one coefficient of said second set comprises using a metric.

24. (Previously presented) A method according to claim 20 wherein, if said set of intermediate coefficients is not consistent with said first set of coefficients, the value at least one adjusted intermediate coefficient of said set of adjusted intermediate coefficients is readjusted to generate a readjusted set of intermediate coefficients so that said set of readjusted intermediate coefficients is consistent with said first set of coefficients.
25. (Previously presented) A method according to claim 1 wherein adjusting said at least one intermediate coefficient comprises adjusting said at least one intermediate coefficient responsive to coefficients in a neighborhood of said at least one intermediate coefficient.
26. (Original) A method according to claim 25 wherein said neighborhood comprises a plurality of intermediate coefficients, including said at least one intermediate coefficient, for which any two intermediate coefficients have same values for all the same coordinates except one.
27. (Previously presented) A method according to claim 1 wherein adjusting said at least one intermediate coefficient comprises adjusting said at least one intermediate coefficient responsive to a ratio between a partial coefficient and a function of other partial coefficients.
28. (Previously presented) A method according to claim 1 wherein adjusting said at least one intermediate coefficient comprises adjusting said at least one partial coefficient responsive to a trend in changes of values of partial coefficients as a function of changes in at least one coordinate of said intermediate space.
29. (Previously presented) A method according to claim 1 wherein adjusting said at least one intermediate coefficient comprises adjusting said at least one partial coefficient responsive to an expected trend in changes of values of partial coefficients as a function of changes in at least one coordinate of said intermediate space.

30. (Previously presented) A method according to claim 1 wherein adjusting said at least one intermediate coefficient comprises adjusting said at least one partial coefficient responsive to a predetermined template.

31. (Original) A method according to claim 30 wherein said template identifies an edge in said recovered image and comprising smoothing said recovered image on either side of said identified edge.

32. (Previously presented) A method according to claim 1 wherein adjusting the value of said at least one intermediate coefficient comprises adjusting the value of said at least one intermediate coefficient responsive to data from different compressed data that is related to said compressed data.

33. (Original) A method according to claim 32 wherein said image in said image space comprises values for a first color component of a color image in said image space and said different compressed data comprises data for generating a second color component image of said color image.

34. (Previously presented) A method according to claim 32 wherein said different compressed data identify an edge in said recovered image.

35. (Previously presented) A method according to claim 31 comprising smoothing said image on either side of said edge.

36. (Previously presented) A method according to claim 1 comprising testing said set of adjusted intermediate coefficients for consistency with a first set of intermediate coefficients defined in an intermediate space different from said intermediate space in which said adjusted intermediate coefficients are defined.

37. (Original) A method according to claim 36 wherein testing said set of adjusted intermediate coefficients comprises transforming said set of adjusted intermediate coefficients into a second set of intermediate coefficients in said different intermediate space and comparing intermediate coefficients of said first set with intermediate coefficients of said second set to determine if said set of adjusted coefficients is consistent with said first set of intermediate coefficients.

38. (Original) A method according to claim 37 wherein comparing coefficients comprises determining how close the value of at least one intermediate coefficient of said first set is to the value of at least one intermediate coefficient of said second set.

39. (Original) A method according to claim 38 wherein determining how close the value of at least one intermediate coefficient of said first set is to the value of at least one intermediate coefficient of said second set comprises using a metric.

40. (Previously presented) A method according to claim 36 wherein if said set of adjusted intermediate coefficients is not consistent with said first set of intermediate coefficients, the value at least one adjusted intermediate coefficient of said set of adjusted intermediate coefficients is readjusted to generate a readjusted set of intermediate coefficients so that said set of readjusted intermediate coefficients is consistent with said first set of intermediate coefficients.

41. (Currently Amended) A method for recovering an image defined as a function of image coordinates in an image space from compressed data that is a function of transform coordinates in a transform space the method comprising:

a) using said data to generate a first set of recovered transform coefficients in said transform space;

b) determining an adjustment range for at least one recovered transform coefficient;

c) replacing said at least one recovered transform coefficient by a value in said adjustment range responsive to recovered transform coefficients in a neighborhood

comprising a plurality of less than all of said recovered transform coefficients of said at least one recovered transform coefficient for which any two recovered coefficients have same values for all the same coordinates except one, to generate an adjusted set of recovered transform coefficients; and

d) recovering said image by transforming said adjusted set of recovered transform coefficients to said image space.

42 - 52 (Cancelled)

53. (Previously presented) A method according to claim 1 comprising smoothing said recovered image.

54. (Previously presented) A method according to claim 1 wherein said image is an image defined in a three dimensional image space.

55. (Previously presented) A method according to claim 1 wherein said image is an image defined in a two dimensional space.

56. (Previously presented) A method according to claim 1 wherein said compressed data is data generated using a unitary separable transform to transform an image in said image space into a set of values in said transform space.

57. (Previously presented) A method according to claim 1 wherein said compressed data is generated using a JPEG compression method.

58. (Previously presented) A method according to claim 1 wherein said compressed data is generated using an MPEG compression method.

59. (Previously presented) A method according to claim 1 wherein said compressed data is generated using a PX64 compression method.

60. (Previously presented) A method according to claim 1 wherein said compressed data is generated using an H261 compression method.

61. (Previously presented) A method according to claim 1 wherein said compressed data is generated using an H263 compression method.

62. (Previously presented) A method according to claim 1 wherein said compressed data is generated using an H323 compression method.

63. (Previously presented) A method according to claim 1 wherein said compressed data is generated using an HDTV compression method.

64. (Previously presented) A method according to claim 34 comprising smoothing said image on either side of said edge.

65 - 67 (Cancelled)